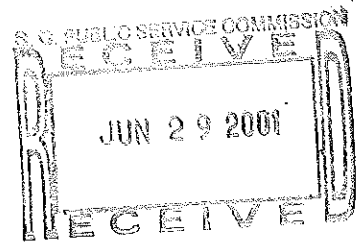


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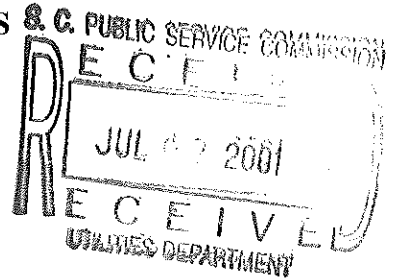
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**DIRECT TESTIMONY OF**  
**HUBERT C. YOUNG, III**  
**ON BEHALF OF**

**SOUTH CAROLINA ELECTRIC & GAS**

**DOCKET NO. 2001-289-E**



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- 8 **Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.**
- 9 **A.** My name is Hubert C. Young, III; my business address is 1426 Main
- 10 Street, Columbia, South Carolina.
- 11 **Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT**
- 12 **CAPACITY?**
- 13 **A.** I am employed by South Carolina Electric and Gas Company (SCE&G
- 14 or "the Company") and serve as Manager of Transmission Planning.
- 15 **Q. PLEASE BRIEFLY DESCRIBE YOUR EDUCATIONAL**
- 16 **BACKGROUND AND BUSINESS EXPERIENCE.**
- 17 **A.** I graduated from Clemson University with a Bachelor of Science
- 18 degree in Electrical and Computer Engineering. I am a registered
- 19 Professional Engineer in the state of South Carolina. I began working
- 20 for SCE&G in 1975, and during my career I've held positions in
- 21 Engineering Computer Support and Transmission Planning.

RETURN DATE: \_\_\_\_\_

SERVICE: \_\_\_\_\_

1     **Q.     WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

2     **A.**     The purpose of my testimony is to discuss the need and necessity for  
3             the construction of a new 230/115 kV substation near the intersection  
4             of Farrow Road and Brickyard Road in northeast Columbia (see  
5             Exhibit HCY-1). We call this new substation the Killian 230/115 kV  
6             Substation. The Killian substation site is located adjacent to the  
7             existing Pineland to Pontiac 230 kV transmission line and will connect  
8             to this line; therefore, no new 230 kV transmission line construction is  
9             required for this project. SCE&G proposes to install in the Killian  
10            substation a 230/115 kV, 336 MVA (megavolt-amperes)  
11            autotransformer, two 230 kV transmission line terminals, and four 115  
12            kV transmission line terminals (see Exhibit HCY-2).

13    **Q.     WHAT CRITERIA DO YOU USE TO DETERMINE WHEN**  
14       **NEW TRANSMISSION OR SUBSTATION FACILITIES ARE**  
15       **NEEDED?**

16    **A.**     Our company subscribes to the guidelines established by the North  
17             American Electric Reliability Council (NERC), the Southeastern  
18             Electric Reliability Council (SERC), and SCE&G's Long Term  
19             Planning Criteria. All of these criteria can be briefly summarized as:  
20             the SCE&G Transmission System must be designed such that, during  
21             any of the below listed contingencies, only short-time overloads, low  
22             voltages, and local loss of load will occur. After appropriate switching  
23             and re-dispatching, all non-radial loads can again be served with

1 reasonable voltages, and all facilities can again operate within  
2 acceptable limits. These contingencies are:

- 3 1. Loss of any generator with normal or delayed clearing.
- 4 2. Loss of any transmission circuit operating at a voltage level of  
5 115 kV or above with normal or delayed clearing.
- 6 3. Loss of any transmission transformer with normal or delayed  
7 clearing.
- 8 4. Loss of any electrical bus and associated facilities operating at  
9 a voltage level of 115 kV or above with normal clearing.
- 10 5. Loss of entire generating capacity in any one plant with normal  
11 clearing.
- 12 6. Loss of all circuits on a common structure with normal  
13 clearing.
- 14 7. Loss of any generating unit simultaneously with the loss of a  
15 single transmission line with normal clearing.
- 16 8. Loss of all components associated with a breaker failure.
- 17 9. Loss of any generator, transmission circuit, or transmission  
18 transformer, followed by manual system adjustments, followed  
19 by the loss of another generator, transmission circuit, or  
20 transmission transformer.

21 **Q. WHY IS THE KILLIAN SUBSTATION NEEDED?**

22 **A.** Columbia Northeast (bounded by I-20, US-21 and SC-53) has a total  
23 customer load of approximately 130 MW. This load is served through

1 four 115 kV distribution substations (SCRA, Greengate, Sparkleberry,  
2 and Sandhill). There is an additional 80 MW of customer load  
3 between Blythewood and Winnsboro along the I-77 corridor (see  
4 Exhibit HCY-3). All of these substations and the 210 MW of  
5 customer load are served from the existing Pineland 230/115 kV  
6 substation. In the past, the plan has been for any event in the Pineland  
7 Substation that causes the substation to fail or become unavailable,  
8 then customer load in the Columbia Northeast area would be served by  
9 115 kV transmission lines coming into the area from the neighboring  
10 Denny Terrace Substation (North Columbia) and Columbia Industrial  
11 Park Substation (Southeast Columbia) (see Exhibit HCY-4). These  
12 existing 115 kV transmission lines into the Columbia Northeast area  
13 have reached their capacity and can no longer provide backup service  
14 for the entire 210 MW.

15 **Q. WERE OTHER ALTERNATIVES CONSIDERED?**

16 **A.** Yes, we considered installing a second autotransformer in the existing  
17 Pineland Substation. We found that while this would solve some  
18 events that were tested, it did not solve all events that resulted in  
19 customer load being unserved for potential significant periods of time.  
20 We determined that the separation of the two sources (substations) in  
21 the Columbia Northeast area is the best solution.

1   **Q.    WAS ANY STUDY MADE CONCERNING THE**  
2       **ENVIRONMENTAL EFFECTS OF THE KILLIAN**  
3       **SUBSTATION?**

4   **A.    Yes, a study was conducted by General Engineering, a Division of**  
5       General Engineering Laboratories, Inc., of Charleston, South Carolina.  
6       The study was completed May 3, 2001. The final assessment was  
7       included in the Application submitted to the Public Service  
8       Commission on June 29, 2001.

9   **Q.    WHAT WERE THE CONCLUSIONS OF THIS ASSESSMENT?**

10  **A.    The proposed substation will not result in any significant**  
11       environmental impacts on land use, vegetation, wildlife, threatened  
12       and endangered species, jurisdictional wetlands, designated  
13       floodplains, or floodways.

14  **Q.    WAS AN ARCHAEOLOGICAL STUDY CONDUCTED?**

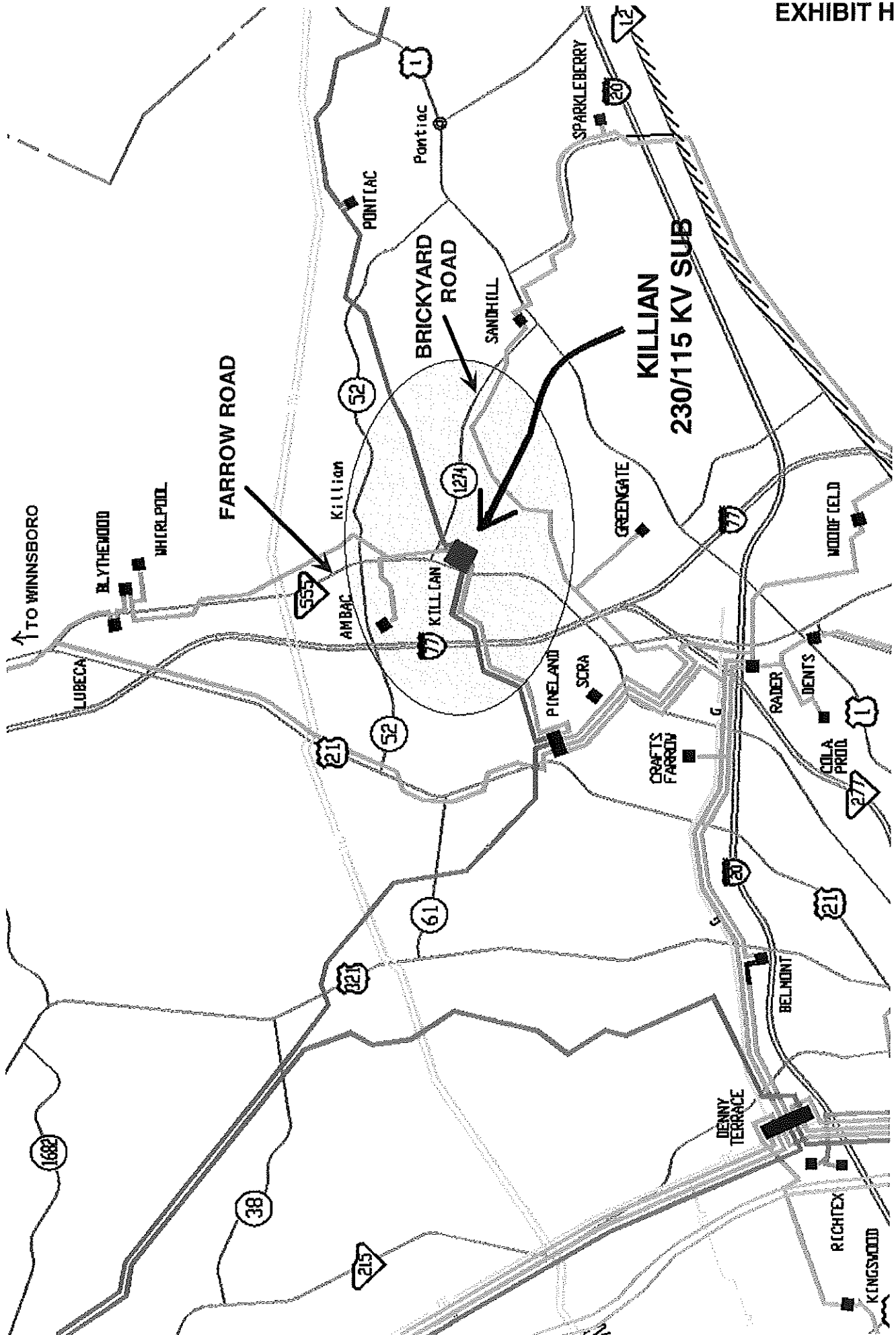
15  **A.    A review of the records at South Carolina Institute of Archaeology and**  
16       Anthropology (SCIAA) found no known or recorded archaeological  
17       sites on the proposed substation site and existing transmission line  
18       corridor adjacent to the proposed substation site.

1    **Q.    WHAT IS THE ESTIMATED COST AND IN-SERVICE DATE**  
2           **OF THE KILLIAN SUBSTATION?**

3    **A.**    The Killian Substation is estimated to cost approximately \$4,700,000  
4           and is scheduled to be in service by May 2002.

5    **Q.    DOES THIS CONCLUDE YOUR TESTIMONY?**

6    **A.**    Yes



# KILLIAN 230/115 KV SUBSTATION

